New York (State)
Commission on the St.
Lawrence ship canal
project
Preliminary report

Legislative Document (1921) No. 20

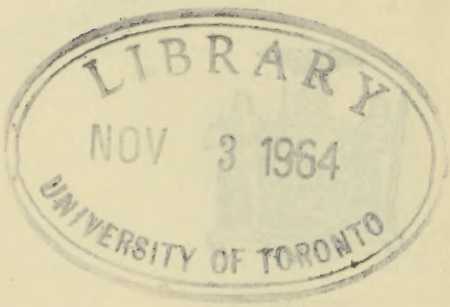
STATE OF NEW YORK

PRELIMINARY REPORT

OF THE

Commission Created Pursuant to Chapter Eight Hundred and Six of the Laws of Nineteen Hundred and Twenty

ALBANY
J. B. LYON COMPANY, PRINTERS
1921



REPORT

To the Legislature of the State of New York:

The commission created pursuant to Chapter 806 of the Laws of 1920, to represent the State of New York at hearings before the International Joint Commission on Boundary Waters, created under and by virtue of Article 9 of the convention concluded on January 11, 1909, between the United States and the Dominion of Canada, hereby respectfully submits the following preliminary report:

The commission was duly organized by the appointment of a chairman and vice-chairman. The commission held meetings and made investigations at different places throughout the United States. As a result of its deliberations the commission, on or about the 29th day of December, 1920, submitted to such International Commission a brief, which reads as follows:

INTERNATIONAL JOINT COMMISSION ON BOUNDARY WATERS

In Matter of Improvement of the St. Lawrence River between Montreal and Lake Ontario, and matters incidental thereto.

Memorandum and Points submitted by the New York State Commission in relation to the Improvement of the St. Lawrence River between Montreal and Lake Ontario, and in relation to other matters incidental thereto, which are involved in the St. Lawrence River improvement investigation of The International Joint Commission on Boundary Waters.

STATEMENT

Much data in relation to the matters under investigation have already been submitted to the Honorable Joint Commission at Buffalo, Albany, N. Y., Boston, Montreal and elsewhere, and the attention of the Honorable Commission is most respectfully called thereto.

No attempt will be made to re-present any part of such data in this document. The questions involved are so large and far reaching that they must receive serious consideration.

Therefore they cannot be approached except with open minds and a willingness to give full consideration to all aspects of the questions involved. Evidently that is the attitude of members of the Honorable International Joint Commission, as it ought to be the attitude of the citizens of the two nations, which have undertaken the investigation.

The St. Lawrence River is the international boundary from Tibbets Point at the outlet of Lake Ontario to St. Regis, a distance of 113 miles. The upper section comprises the open stretch of river from Lake Ontario to Ogdensburgh, in which there is free navigation for lake vessels, a distance of 62 miles.

The next section extends from Ogdensburg to St. Regis, a distance of 54 miles. Below St. Regis the St. Lawrence flows wholly within Canadian territory. The distance from St. Regis to Montreal is 66 miles. Montreal is at the head of tide water and is reached by ocean going vessels.

Montreal is 873 nautical miles, or 1,005 statute miles, from the sea via the northerly Belle Isle route, and 692 nautical miles, or 797 statute miles, from the sea via the southerly Cabot Strait route. The distance from Lake Ontario to the sea is about 1,180 miles, for nine-tenths of which distance, that is, from St. Regis to the Gulf of St. Lawrence, the river flows wholly within Canadian territory.

The distance from Lake Erie to the outlet of Lake Ontario is approximately 185 miles. The entire distance of Lake Erie from the sea via the Welland Canal and the St. Lawrence River is approximately 1,373 statute miles.

The distance from Port Colbourne, the upper end of the Welland Canal, to Fort William is 852 miles; to Duluth 974 miles, and to Chicago 876 miles. These ports are more than 2,200 miles from the ocean. Lake Superior is 601 feet above the level of the sea. That elevation must be overcome by steaming up against the strong currents in the St. Lawrence, Detroit, St. Clair and St. Mary rivers and locking up through twenty or more locks with all the delays incident thereto.

POINT I

No Economic Advantages in a Ship Canal Down the St. Lawrence

The saving in distance via the St. Lawrence route over the New York route from Duluth to Liverpool is only 408 miles; from Fort William to Liverpool is only 492 miles; from Chicago to Liverpool only 491 miles; and from Buffalo to Liverpool is only 492 miles; whereas the saving in distance between such lake ports and Southampton is about one-half of the above savings. To French and other South European ports the distance is as great or greater from such lake ports via Montreal than via New York.

The physical obstacles to navigation in the St. Lawrence route, which nature has interposed, are far more serious than such differences in distance or other inconveniences of the New York route, and such obstacles will be none the less when dams and locks are constructed to still further retard and make still more expensive the navigation of the St. Lawrence.

It must be born in mind that only the upper and lower reaches of the river are navigable, the former for Great Lakes vessels from Lake Ontario to Ogdensburgh, a distance of 62 miles, and the latter from Montreal to the sea, a distance of 1,005 miles via the Belle Isle route, which is the shorter of the two St. Lawrence routes to Liverpool by approximately 300 miles, but which route is closed by ice floes to navigation earlier in the fall and is cleared of ice later in the spring than is the southern, Cabot Straits, route.

The channel of the St. Lawrence below Montreal is 30 feet deep and 450 feet wide in the straight portions and 600 to 750 feet wide in the bends between Montreal and Quebec, a distance of 160 miles; but it has a width of 1,000 feet in the first 170 miles below Quebec nearly to Father Point, which is 181.6 miles from Quebec. For the remaining distance of 673 miles the river broadens out and flows into the Gulf of St. Lawrence.

The channel from Lake Ontario to Ogdensburg is deep enough for ocean going vessels, but it passes between islands and is somewhat tortuous. In the 68 miles from Lake Ontario to Galop

Rapids the fall is only about one foot, but in the succeeding 48 miles, comprising the Galop, Farrans Point, Long Sault and other rapids, the aggregate fall is 91 feet, the major part of which is within the 11½ miles of the Long Sault Rapids where the fall is 48 feet. Through all these rapids the natural channel is very tortuous and the cross currents are swift and they will be difficult to confine and hold in check. In the 30-mile reach of Lake St. Francis the water is deep enough for lake or ocean going vessels. In the Soulanges section of 14 miles occur the Coteau, Cedar and Cascade rapids with a total fall of 84 feet. Below them is the Lake St. Louis, 16 miles long, with depth enough for any ocean going vessel. The Lachine Rapids are 8½ miles long and have a total fall of 45 feet.

At Galop Rapids, 3 miles long, the fall is 10 feet; from Galop Rapids to Ogdens Island the distance is 8 miles and the fall is 9½ feet; the channel is very tortuous; from Ogdens Island to Bradfords the distance is 11 miles and the fall is 18½ feet; from Bradfords Point to Richards Bay the distance is 7 miles and the fall is 3 feet; from Richards Bay to Massena Point the distance is 11½ miles and the fall is 48 feet; from Massena Point to St. Regis the distance is 6½ miles and the fall is 2½ feet.

The total fall of water along the International boundary is 92 feet, and below that boundary and wholly within the Dominion of Canada the total fall is 129 feet, of which 84 feet is in the 14 miles reach of the Coteau, Cedar and Cascade rapids, and 45 feet is in the 8½ miles reach of the Lachine Rapids. The total fall to the St. Lawrence River at Montreal from Lake Ontario, whose mean elevation above the sea is approximately 244.53 feet, is approximately 221 feet. The elevation of the St. Lawrence at Montreal is 23.1 feet above the ocean, but only 14.73 feet above mean tide at New York City, the standard adopted by the United States Lake Survey in 1880. Profile maps of the St. Lawrence River between Lake Ontario and Montreal, of which the distance is 179 miles, will show many islands, tortuous channels and in some sections waters several miles in width. For much of the distance the banks and shore slopes are gradual and easily flooded. In their Report of 1900, at page 404, the Board of Engineers on Deep Waterways said

that "Ice jams in the vicinity of St. Regis Island occur during the winter months, occasionally beginning in December or extending into April. The rise of water is generally from 10 to 20 feet above standard low water."

At Cornwall, Lock No. 15, the elevation of water for several years averaged from 20 to 30 feet above standard low water. Who can foretell the extent of ice jams resulting from the construction and maintaining of dams across the St. Lawrence and the consequent damages to property resulting from the obstruction of the floes of ice, causing the same to back up for miles as it has done in the past? Evidence of that was presented at the New York hearing in October in the form of a copy of a document prepared by Dominion representatives and presented to a Committee of the House of Representatives in Washington. The upper as well as the lower reaches of the St. Lawrence are subject to the extensive and frequent ice floes from November until the river is frozen over. Below St. Regis the river is wholly north of the 45 degrees of north latitude, where the winters are long and severe and the lower 1,000 miles of the river is practically closed to navigation for about six months of the year. In "a Memorial Concerning the Furr-Trade of the Providence of New York," presented to his Excellency William Burnett, Captain-General and Governor by Cadwallader Colden, Surveyor-General of the Province, dated on the 10th day of November, 1724, Mr. Colden said that "notwithstanding all these advantages (which he had enumerated) the French labor under difficulties that no art or industry can remove. The mouth of the river of St. Lawrence, and more especially the Bay of St. Lawrence, lies so far north, and is thereby so often subject to tempestuous weather and thick fogs, that navigation thereof is very dangerous and never attempted but during the summer months.

"The wideness of this bay, together with many strong currents that run in it, the many shelves and sunken rocks, that are everywhere spread over both the bay and river, and want of places for anchoring in the bay, all increase the danger of this navigation; so that a voyage to Canada is justly esteemed much more dangerous than to any other part of America. The many shipwrecks that happen in this navigation are but too evident proofs of the truth of this."

Notwithstanding all the precautions taken since that time many ships have been wrecked in the gulf and river of St. Lawrence. It is known as the "Grave-yard of the Atlantic."

In 1837 the *Albeuria* foundered in the gulf of St. Lawrence and 525 lives were lost; in 1840 the steamer *Dundee* was wrecked and 292 lives were lost; in 1857 the steamer *Montreal* was lost 15 miles above Quebec with 253 lives; in 1898 the French liner, *La Bourgoigne*, was in collision off Sable Island and 584 lives were lost; in 1914 the Canadian-Pacific liner, *Empress of Ireland*, was in collision with the collier, *Storstad*, in the St. Lawrence River near Father Point and sank in 20 minutes, and upwards of 1,000 lives were lost. The commission which investigated that unparalleled disaster found that the navigation of the St. Lawrence is attended with the constant probability of fogs. Captain Kendall said "it was very foggy," and although the officers of the two vessels saw each other's vessel approaching, the fog settled down so suddenly that they were lost to each other's view and the collision occurred. It will be remembered that the loss of the White Star steamer *Titanic* in 1912 after colliding with an iceberg resulted in the loss of 1,500 lives. That disaster occurred, however, off the banks in the region of icebergs, which is in the usual route of vessels passing between Liverpool and the Gulf of St. Lawrence.

Other disasters have occurred in the navigation of the River and Gulf of St. Lawrence, all of which tend to confirm the truth of the statements of navigators, in effect that the navigation of those waters on account of the constant menace of fogs, snow and ice is most hazardous. This is borne out by the marine insurance rates, which increase from midsummer until November, when insurance cannot be had at any rate and thereupon insurance ceases altogether. Notwithstanding all the physical obstacles to be overcome, engineers may be able to construct prisms, dams and locks adequate to accommodate ocean going vessels of 25 or 30 feet draft between Lake Ontario and Montreal, provided they be given money enough and sufficient time to prosecute the undertaking.

Nothing quite like it, however, has hitherto been attempted. The Panama Canal is about 40 miles long, and one-half its length

is through Gatun and Miraflores Lakes. That involved no such engineering problems as will the construction and operation of dams and locks from the beginning of the Galop to the lower end of the Lachine Rapids in the St. Lawrence River, with all the crooks and turns and other obstacles to be overcome. Some of the difficulties of such an undertaking were reported on by the Board of Engineers on Deep Waterways between the Great Lakes and the Atlantic tide waters in 1900. See House Document No. 149 of the Second Session of the Fifty-sixth Congress.

Who can foresee all the exigencies that may arise, necessitating the alteration of plans as the work progresses and the reconstruction of parts that may be injured as the work goes on?

Will the people of the United States forget how much more the Panama Canal cost than was the estimate therefor when that project was authorized? The cost of nearly all public works exceeds and occasionally is twice the estimates. Be this as it may, the difficulties of construction are not all the objections to that project. With such improvements of the St. Lawrence completed, the difficulty of navigating an ocean going vessel up through the ice-flown and befogged St. Lawrence, and especially up through the Lachine, Soulanges, Long Sault and Galop canalized sections of the river with its short bends, cross-currents, that will necessarily be encountered with their dozen or more ship-locks, has never been told and can only be imagined by experienced navigators.

The difficulties of and the delays attending the navigation of the Suez, the Corinthian, the Kiel, the Amsterdam, the Manchester and the Panama ship canals are incomparable with the difficulties of and delays attending the navigation of the series of ship canals to be constructed between Galop Rapids and Montreal.

In addition to all such obstacles will be the difficulties of and delays in navigating the Welland Canal, 25 miles long, with its 7 locks, each of 46½ feet lift; the Detroit River, 31 miles long; the St. Clair Flats Canal, St. Mary's River, one of whose channels is 63 miles long and the other 75 miles long.

The entire waterway from the Gulf of St. Lawrence to Duluth, except through the open waters of Lakes Ontario, Erie, Huron and Superior, consists of narrow, restricted and much of the

way of tortuous channels, wherein the navigation by ocean going vessels is difficult and very costly on account of the delays incident thereto.

Owners of ships do not seek such waterways for profitable navigation. On the contrary, they prefer the open sea, where there are no limitations as to speed, nor restrictions as to width and depth of channels and no locks intercepting the courses of their vessels.

In their report of 1900, *supra,* the Board of Engineers on Deep Waterways discusses the reduction of speed on account of the difficulty of steering a ship in a restricted waterway as well as on account of other causes, such as the area of a cross-section of the prism, the depth of water under the vessel and the regulations prescribed for vessels, navigating such restricted channels and in the passing through the locks. All such physical and regulatory conditions impede the passage of vessels between ports and augment the expense of operation. This is illustrated in the navigation of ship canals generally.

The limit of speed through the Suez Canal is from 5.75 to 6.1 miles per hour; through the Amsterdam Canal, to 5.6 miles per hour; through the Kiel Canal, to 6.2 miles per hour; through the Manchester Ship Canal, to 6 miles per hour, and through the Panama Canal to 8 miles per hour.

All these, except the Manchester and Panama Canals, are practically sea level canals with very little lockage, and still the speed is less than one-half the speed of ocean going vessels in the open sea. Whereas the inland waterway from the Gulf of St. Lawrence to Duluth, which is 602 feet above the sea, will have 20 or 21 locks of varying lifts; several of them will have lifts of 46½ feet. One or more other locks may have still greater lifts. Most of them, however, will have smaller lifts, but all will greatly retard vessels in their passage into and out of the St. Lawrence and the Great Lakes. The total elevation to be overcome by locks is 602 feet.

The Board of Engineers on Deep Waterways in their report of 1900, *supra,* estimated the minimum time of lockage of two vessels in one lockage in a 21-foot waterway at 52.7 minutes, making the average time per ship 26.35 minutes; and in a 30-foot

waterway at 60.3 minutes, making the average time per ship 30.15 minutes. However, that average time per single ship would not avail the owner anything for his vessel would be delayed the full 52.7 minutes in the smaller waterway and the full 60.3 minutes in the larger waterway. The averages are given to show the tonnage capacity of the locks rather than the time consumed by any single vessel in any such lockage. These lockages are the minimum times required when there are no delays to ships in entering the locks. The Board of Engineers on Deep Waterways also reported that the delays to ships while awaiting lockage at the three locks at St. Mary's Falls in 1897 averaged only ¼ of an hour, while in 1894 the delays averaged 3½ hours for each vessel, and that "similar delays will occur at the Galop Rapids lock to ships bound east." Such delays are due to heavy weather, congestion of vessels at the locks, breaks in the locks, the blockage of the waterway by sunken vessels and flooding the locks, or in some cases to breaks in the banks or walls of the prisms. In such swift, turbulent waters as those of the St. Lawrence with their cross-currents, whirling eddies, sharp turns and many rapids, breaks are inevitable in artificial structures, such as dams, locks and prisms, far more so than in such canals as the Panama, where the waters consist of lakes at rest, and such rivers as the Chagres River.

Notwithstanding all the safeguards used in the Panama Canal, slides and breaks have occurred, interrupting its use for months at a time and resulting in long delays to its navigation and entailing heavy expenses upon the government.

Floods, fogs and floes of ice are natural phenomena which, as Cadwallader Colden said of the St. Lawrence in 1724, "no art or industry can remove." Fogs and floes of ice are frequent in the St. Lawrence.

The Board of Engineers on Deep Waterways, *supra,* said: "the St. Lawrence River from Tibbets Point to the foot of Lake St. Francis, a distance of 142 miles, has a fall of 93 feet, distributed in rapids and river slopes under conditions which make any project for the improvement of the river for deep-draft vessels difficult and expensive. * * * The navigable channel through the Thousand Islands and Brocks Group, as shown on

the charts, is from 40 to 120 feet deep, but in places is less than 500 feet wide, and in case the river should be improved for 30-foot navigation, it is possible that points of rocks above grade may be found within the limits of the channel, which have not been located by previous surveys. No estimate has been included for this section of the river. * * * From Richards Point through Long Sault Rapids to the mouth of Grass River at the head of Cornwall Island (10.6 miles) there is a fall of 48 feet, which it is proposed to overcome by constructing a canal of standard cross-section through the flat country to the south of the St. Lawrence River with a lock of 48 feet lift near the lower end."

This latter proposal the Chief of Engineers in House Document No. 1591, page 21, of the Sixty-fifth Congress, Third Session, said, in effect, was rendered impracticable on account of the water power development there by the St. Lawrence River Power Company.

Colonel James G. Warren, in his report to the Chief of Engineers of the United States Army, House Document No. 1591 of the Sixty-fifth Congress, Third Session, at pages 26–27, said: "But assuming that such ocean connection (between the Great Lakes and the Atlantic ocean) to be assured, the use by ocean going vessels would still be largely governed by the depths of the harbors and connecting waters of the Great Lakes, which under existing projects for improvements, provide depths of 19 to 20 feet at low water, as compared to 25 feet depth in the enlarged Welland and proposed St. Lawrence River Canals."

"It is, therefore, to be stated that the full use of the proposed United States St. Lawrence Ship Canal would still be dependent upon large expenditure by the United States on Great Lakes harbors and channels while, on the other hand, the existing harbors and channels provide for seaboard Great Lakes navigation by ocean going and lake vessels of 20 to 22 feet draft, which admit of extensive commerce.

The present needs of commerce are now reasonably provided for, and as to prospective needs of commerce, there is no evidence of any material development of a greater commerce than at present."

The question of deepening the harbors and connecting waters of the Great Lakes has been unfavorably considered, as set forth in House Document No. 755 of the Sixty-fifth Congress, Second Session, and brings out that such deepening would involve an expenditure so great as to make it not advisable at the present time.

In 1900 George Y. Wisner, of the Board of Engineers on Deep Waterways, said (26 Proceeding of American Society of Civil Engineers, p. 992) that the total cost of deepening the connecting channels and harbors of the Great Lakes would be $7,000,000 for each additional foot in depth and the annual charges for maintenance would be $245,000 for each additional foot in depth. Since 1900 the cost of all such work has greatly increased. It may now be assumed that such work would cost at least $12,000,000 per foot for each additional foot in depth, and the annual charge for maintenance would be $450,000 for each additional foot in depth.

If the channels be widened as well as deepened, the cost now may be twice the cost estimated by Mr. Wisner in 1900.

For the foregoing and other reasons, Colonel Warren disapproved of any improvement of the St. Lawrence from Lake Ontario to the Canadian border, suitable for navigation by ocean-going vessels, and his report was approved on December 9, 1918, by Major-General William M. Black, Chief of Engineers, and transmitted by the Secretary of War to the House of Representatives and became House Document No. 1591 of the Sixty-fifth Congress, Third Session.

In compliance with a direction contained in the River and Harbor Act of June 3, 1896, directing the Secretary of War "to cause to be made, accurate examinations and estimates of cost of construction of a ship canal by the most practicable route, wholly within the United States, from the Great Lakes to the navigable waters of the Hudson River of sufficient capacity to transport the tonnage of the lakes to the sea, in 1897 the engineers made an exhaustive investigation of the physical conditions of several routes, the engineering problems involved in each, the economic advantages claimed for such a waterway and other matters incidental thereto. Major Thomas W. Symons had per-

sonal charge of the investigation and his reports, with accompanying maps, approved by the Chief of Engineers, comprises a hundred pages or more of House Document No. 86 of the Fifty-fifth Congress, First Session, which was transmitted by R. A. Alger, Secretary of War, on July 15, 1897.

Among the conclusions reached by the United States Army Engineers, and stated in that report at page 109, is the following: "For the highest economy in transportation, special types of vessels are needed for use on the ocean, on the lakes and on the canals, and neither can replace the other in its proper waters without suffering loss of efficiency. Ocean vessels could not, as a general rule, engage in the business of passing through a ship canal and the lakes to upper lake ports; and lake vessels are not fitted for use on the ocean, and if they made use of a canal, they would have to transfer their cargoes at the seaboard. For economical transportation through a canal from the Great Lakes to the sea, special vessels, differing from and far less costly than ocean or lake vessels, are required."

At page 110 of that report occurs the following:

> "If a ship canal were built, the business thereon would not be done in large lake or ocean vessels, but in barges and boats, which could be equally well accommodated in a canal of much less size."

These conclusions were reached after exhaustive investigation into the matter in all its phases and nothing has occurred since that time to raise any question as to their soundness. But subsequent investigations have confirmed and strengthened them.

The Roosevelt Commission of 1900, headed by General Francis V. Greene, made a thorough investigation of the subject of a ship canal between the Great Lakes and the ocean, and in its report stated:

> "There are certain insuperable difficulties in the way of such a canal ever being a success, no matter by whom constructed. It is intended to be used by vessels which can navigate the ocean, the canal and the lakes. We do not believe that such vessels can be constructed so as to be economically a commercial success. The ocean vessel is

built to withstand the fierce storms of the Atlantic and costs in its most modern type about seventy-one dollars per ton of carrying capacity. The vessel that can navigate the lakes is built to withstand less frequent and dangerous storms; it has less draft on account of the smaller depths of the harbors on the lakes and is built much less substantially; its cost is about thirty-six dollars per ton of carrying capacity. The cost of a canal fleet, consisting of a steamer and three consorts, with a total capacity of 3,900 tons, according to figures furnished us by boat builders, will be $28,500 or $7.31 per ton."

Those estimates, made in 1900, as to the cost of the three types of vessels are undoubtedly much too low, but the ratio of the cost of each has not greatly changed as is shown by Mr. Adam E. Cornelius in his address recently forwarded to the International Joint Commission.

The report of the Roosevelt Commission was submitted to the Assembly of New York on January 25, 1900, and is known as Assembly Document No. 31 of 1900, and is entitled "Report of the Committee on Canals of New York." It contains much information in relation to various types of canals from official sources. After canvassing all kinds of canals in Europe and in America, that commission recommended the Barge Canal as the best type for all purposes to connect the Great Lakes with the ocean. Its recommendation met with the approval of Governor Roosevelt, and in 1903 the people of the State authorized their construction at an initial bond issue of $101,000,000. Since that time, three other bond issues have been authorized. These aggregate altogether $154,800,000, in addition to $2,500,000 directly appropriated in 1920 for a State elevator at Oswego and one also in New York.

A further bond issue of thirty or more millions of dollars may be necessary to pay land and other damages and for additional elevators and other terminals than the fifty or more in the process of construction or already constructed.

This will complete the greatest system of artificial waterways in America, and one of the most approved types of canals in the world.

They are free for all to use and are maintained by the State of New York at an annual expense of upwards of many thousands of dollars.

In 1900, before the Barge Canal type was decided upon, the State Engineer and Surveyor was authorized to make a survey of the routes and an estimate of the probable cost of such canals. The State Engineer, Hon. Edward A. Bond, called to his assistance several distinguished engineers, namely, Hon. Elnathan Sweet, whose report on the problem of the resistance encountered in navigating restricted waterways did much to solve that problem; George S. Morrison, member of the Isthmian Canal Commission; Major Thomas W. Symons, of the Corps of United States Army Engineers, who had served on prior canal commissions; Professor William H. Burr, of the Isthmian Canal Commission; Major Dan C. Kingman, of the Corps of Engineers of the United States Army; Alfred Noble, member of the Isthmian Canal Commission, and also of the Board of Engineers on Deep Waterways, *supra;* David J. Howell, of Washington; George Y. Wisner, of Detroit, member of the Board of Engineers on Deep Waterways; Emil Kuichling, in charge of water supply; Trevor C. Leutzé, consulting expert, and many other distinguished engineers. These were experts of national and some of them of international repute. They also made an exhaustive investigation of various phases of a connecting waterway between the Great Lakes and the sea and reported thereon to the Legislature of New York in 1901, in favor of the Barge Canal type, to be constructed across the State of New York. They had before them the report, surveys and maps of the Board of Engineers on Deep Waterways, *supra,* but did not recommend that route to the sea. The report contained the following:

> "The present report has been made with the full knowledge of the many former surveys, studies, projects and estimates which have been made during the past one hundred and twenty years for various improvements of the navigation routes between the Hudson and Lake Ontario and Lake Erie, and also of the Canadian route by way of the St. Lawrence."

It will thus be seen that the distinguished engineers, than whom there were none more eminent in the country, did not approve

the St. Lawrence Ship Canal project, surveyed in 1900, but co-operated in designing New York's Barge Canals as the best type of waterway for the tonnage passing between the Great Lakes and the ocean.

Hon. Lewis Nixon, of New York, one of the best informed men in the country, in a recent address, said:

> "The bulletin of the Bureau of Foreign and Domestic Commerce, issued in 1918, most admirably covers the question:
>
> "'Before recommending the construction of a new canal at a high cost, assurance must be given that the direct and indirect benefits to be derived are commensurate with the outlay required. It must also be demonstrated that the existing facilities are insufficient and cannot be made sufficient, at a cost lower than for the proposed ship canal.'"

The force of this statement will be appreciated by the peoples of both nations who have many waterway projects already approved and awaiting funds for their completion, as to whose feasibility there is no doubt. It is far better that all such projects, both in Canada and in the United States, should go forward under independent supervision and national enterprise, to satisfy the exigencies and commercial necessities of various localities than that the two nations should join in an enterprise of such doubtful utility as the proposed St. Lawrence Ship Canal project, which at the lowest estimate would cost many millions.

Canada has an interior system of waterways greatly in need of improvement. For years, the Ottawa River, and connecting waterways, have been awaiting funds for improvement. In the United States there are several thousand miles of waterways and scores of harbors awaiting appropriations to carry forward improvements that have been approved and which are necessary to relieve railway traffic conditions.

Must all such improvements be further delayed for lack of appropriations, while millions are to be expended in a joint undertaking by the two governments in the construction of a ship canal down the St. Lawrence River, a project which has been repeatedly disapproved by commissions and expert authorities in the United States?

Neither the United States nor Canada can afford to waste millions of dollars when there is such an imperative demand for the improvement of rivers and harbors in both countries, as to whose utility there can be no doubt.

The United States Board of Engineers have reported to Congress that upward of $78,000,000 are needed now to carry forward projects partially completed and others that have been approved. Next year there will be still a larger demand for river and harbor appropriations. At the recent session of the Rivers and Harbors Congress it was stated by the representatives from the Mississippi Valley that a billion dollars would be required to carry on river and harbor improvements wholly within this country, in the next ten years. The elaborate annual reports of the Chief of Engineers will show where such appropriations are needed. There is hardly a river or port from Maine to Florida, or along the Gulf of Mexico, or along the Pacific Coast, or along the Great Lakes, or the interior of the country, but that needs Federal appropriations to complete projects that already have been approved.

Undoubtedly there are similar demands upon the exchequer of the Dominion of Canada to carry forward needed improvements in its extensive rivers and many harbors. Its central provinces are seeking an outlet to Hudson Bay and have several projects in view for the relief of that great wheat-bearing territory.

The eastern provinces also have projects in view for the improvement of their rivers and harbors for which large sums must be appropriated. For a hundred years the two nations have been in perfect accord and no thoughtful person would suggest that these cordial relations should ever be severed, but as a matter of prudence and good statesmanship, if a ship canal were ever to be built down the St. Lawrence River, and for nine-tenths of the distance from Lake Ontario to the Gulf of St. Lawrence wholly within Canadian territory and under the sovereign control of the Dominion of Canada, if not the British Empire, then there should be a cession of territory the entire length of the St. Lawrence River, five or ten miles back from the river, constituting a zone like the Panama Canal Zone, secured by treaty with the Republic of Panama (*Wilson* v. *Shaw,* 204 U. S. 24), or like the zone

recently established by allied powers along the Bosphorus, extending from the Black to the Ægean Sea. Such zone should be neutral territory or under the joint sovereign control of both nations.

Some such concessions ought to be made by both nations to secure the freedom of the St. Lawrence from the domination of either nation, if it were to become a highway built and maintained by both nations. That must be apparent to all, otherwise it may become a waterway for military or naval purposes of transcendent importance in dominating the sovereign control of the Great Lakes, whose neutrality is now preserved by international treaty.

No one is able " to dip into the future " far enough to foresee what international exigencies and complications may arise in another half century, to disturb existing conditions, and neither nation should be subject to such internal naval attack, as would be possible if the St. Lawrence River were made navigable for naval vessels.

Therefore, a neutral zone should be delimited and maintained along the St. Lawrence, if that is to be made a highway at the expense of the two nations for oceangoing vessels.

The International Joint Commission is authorized to inquire: " What traffic, both incoming and outgoing, in kind and quantity, is likely to be carried upon the proposed route both at its inception and in the future? Consideration to be given not only to present conditions, but to probable changes therein resulting from the development of industrial activities due to availability of large quantities of hydraulic power? " The International Joint Commission have under consideration four different schemes or methods of improvement, as follows:

(a) By means of locks and navigation dams in the river.
(b) By means of locks and side canals.
(c) By a combination of the two preceding methods.
(d) By means of locks and power dams.

Evidence in the form of transcripts of reports of the War Department and Department of Commerce was presented at the Buffalo hearings, which evidence showed that nine-tenths of the tonnage of the Great Lakes was domestic tonnage and not one-tenth was exported. That less than ten million tons of Great

Lake tonnage reached the seaboard. That only five to six million tons of grain were exported from the entire Atlantic Coast, and that such exports were gradually decreasing as the grain areas were being exhausted and home consumption was increasing, and in the not distant future the entire wheat and cereal products of the United States would be entirely consumed in this country. Then there will be no need of a ship canal down the St. Lawrence to transport American grains to Liverpool or elsewhere. Evidence shows that much of such American products reach the seaboard through other Atlantic ports than New York and that the amount of grain exported from New York is no greater than the amount now exported from Montreal, or if the evidence does not so show, the fact is that Montreal is now exporting as much grain as New York.

The evidence also shows that the incoming and outgoing traffic is not such now or likely to be such in the future as to warrant the expenditure of one hundred to five hundred million dollars in the construction of the St. Lawrence Ship Canal, whose upkeep, operation and interest on investment would entail an annual outlay of six million dollars or more, when the prospective traffic over it is so uncertain.

For reasons already stated, we respectfully submit that the two nations are not warranted in embarking upon such a project as a commercial necessity, even though it were not fraught with many well-nigh insuperable difficulties, imposed by nature, which neither art nor industry can remove.

POINT II

Power Development

It appears, both from the phraseology of the act and orders of the War Department, authority was conferred upon the International Joint Commission to investigate and report as to schemes or methods of such improvement of the St. Lawrence River by means of locks and power dams, as well as from the appearances of distinguished representatives of the hydroelectric and other power interests, at the various hearings of the commission, and

from the propaganda widely distributed and published in advocacy of the project that it is quite as much a power development project as one in aid of navigation. That appears to be the primary purpose of the proposed improvement and the promotion of commerce is only an incident. If this be so, it will have a most important bearing upon the entire matter.

Under Section 8 of Article I of the Constitution of the United States, authority is conferred upon Congress " to regulate commerce with foreign nations and among the several states and with Indian tribes." That authority is well understood and has been frequently defined. It is contained in what is known as the commerce clause of the Constitution.

In the foregoing Constitution enactment, the States did not authorize the Federal Government to take private property, such as water and riparian rights, without due process of law, for any purpose except in aid of navigation. It cannot be seriously contended that the construction of dams across the St. Lawrence for power development purposes and, in so doing, the taking of private property and the destruction of power plants already installed and in operation, are within the authorization of the commerce clause of the Constitution already quoted. If not, then whatever property or riparian rights are taken or impaired in the prosecution of the St. Lawrence River improvement project must be paid for. What they will amount to is a matter of importance to all concerned. These are additional to the initial cost of construction of the power dams and the installation of their equipments.

If it were permissible under the Constitution to take the privately owned water-front properties along the St. Lawrence River without due process of law, what are the people of the United States to gain by constructing several dams across the St. Lawrence River at the joint or equal expense of the Canadian and Federal Government, when only one-quarter or less of the power to be developed will be available for use in the United States?

Why should the United States pay one-half the cost of such a development, variously estimated at from one hundred million to one billion and three hundred million dollars for an estimated production of one million horse power, and as we shall hereinafter

show, a much less amount of power available for use in the United States, when there are still undeveloped within the United States water powers to the extent of ten or more millions horse power? Will the return to the United States justify the expenditure and especially so if the amount available for the United States be much less than one million horse power out of the 4,130,555 horse power that may be developed along the St. Lawrence from Lake Ontario to Montreal, at the equal expense of the two nations?

These are questions that the Congress of the United States will seriously consider before committing this nation to the project.

It was stated by Alexander T. Vogelsang, Assistant Secretary of the Interior, at Washington, on December 10, 1919, that the records from 1860 to 1917 show the mean annual flow at the head of the St. Lawrence is 241,000 second-feet. That is undoubtedly somewhat greater than the continual flow available for power development purposes.

As already stated, the total fall in the river from Lake Ontario to St. Regis, at the international boundary, is 92 feet, so that the total amount of potential power that may be developed in that part of the river, according to the usual formula, not that of the Federal Power Commission, is 2,013,216 horse power.

However, on account of losses in the process of generation, only 90 per cent of such power can be converted into electrical energy. That reduces the amount available at the switchboard to 1,811,894 horse power, or 1,351,572 kilowatts. Only one-half of that power, or 905,947 horse power, or 675,786 kilowatts, will be available for use in the United States.

The amount of potential power in that part of the river between St. Regis and Montreal, computed according to the same formula, where the total fall is 129 feet, is 2,540,388 horse power, or 1,895,129 kilowatts at the switchboard.

This formula used in this computation allows 80 per cent efficiency and that is reduced to 90 per cent when converted into electric energy and available at the switchboard. From the foregoing it may be seen that the amount of potential power that could be developed along the international boundary is only

2,013,216 horse power, and only one-half of that will be available for use in the United States.

When that potential power is reduced, as it must be, on account of the losses in generation and in conversion into electric energy according to the above formula, there will be available for use in the United States less than 1,000,000 horse power.

The foregoing computation is based upon the theoretical utilization of the mean flow, rather than the minimum flow of the river, and also on the utilization of the total fall of 92 feet between Lake Ontario and St. Regis, which will be impossible, for the fall is broken up into several rapids. The flow is through restricted channels of varying slopes. All such conditions tend to reduce the amount of water power that may be produced. In its generation it is likely that much less power would be produced than the estimates herein given. If the coefficiency of efficiency were 70 per cent, as estimated by some experts, instead of 80 per cent, as allowed in this computation, that would materially reduce the estimates of the production both above and below St. Regis. The fact is that the amount of power available for use in the United States cannot be 1,000,000 horse power, but will be less than 900,000 horse power.

Hon. George Clinton, who has given the matter much consideration, following the formulæ of the Federal Power Commission, estimates the power available for use in the United States as only 681,066 horse power.

Until the engineers appointed by the two countries have made the surveys and prepared the plans and estimates for the proposed improvement for such ship canal and power development, the International Joint Commission will not have the information necessary to report to the two nations its conclusions and recommendations in relation to the project. Unfortunately, for the opponents of the project, they have not the advantage of the expert information that will ultimately be presented to the Commission. But there are some phases of the matters involved in such a gigantic undertaking that must be recognized by all officials and others interested in the investigation. In a recent article published in the New York *Times,* embodying the views of Hugh L. Cooper, the expert hydraulic engineer who designed the Mississippi Power Company dam at Keokuk, Iowa, it appears that one

of the proposed great power dams stretching across the St. Lawrence will cost approximately $300,000,000.

That is but one of the structures involved in the vast scheme, said to be three times as great an undertaking as the building of the Panama Canal. Several other dams have been proposed and will be necessary if all the potential power capable of development is to be utilized, so that the total cost of the entire development may approximate $1,300,000,000, as stated in the *Times* article.

The construction of dams in the St. Lawrence will be exceedingly costly and difficult to maintain, as may be readily appreciated from the physical conditions to be encountered and the tumultuous, voluminous waters to be withstood.

The Assouan dam, 1¼ miles long, extending across the Nile in Egypt, and costing to date approximately $20,000,000, is the nearest approach of any of the modern dams to the type of dams necessary to check the flow of the St. Lawrence and convert its rushing rapids into great lakes of still waters for power development purposes. Many engineering problems must be solved, full and complete plans must be prepared and detailed estimates must be made before Congress can be expected to appropriate moneys for the project.

We understand that is being done and trust that we may have the opportunity of examining them after they are presented to the commission.

The colossal sums involved in the construction of such vast public works are additional to the large amounts that must be expended for land and other damages. In the improvement of the St. Lawrence, such damages will unavoidably be large on account of the lands and water powers that must be taken and the riparian and other property rights that will necessarily be destroyed. That brings us to the consideration of some legal questions involved in the prosecution of the St. Lawrence project.

POINT III

Legal Questions Involved

All fast lands along the shores and the islands in the waters and submerged lands under the waters of the St. Lawrence River, south of the international boundary, belong to and the title thereto is vested in the people and in the State of New York, and cannot be taken for public use for power development purposes without due process of law, that is, without compensation being made to the owners thereof. *Pollard* v. *Hagan,* 44 U. S. 212; *Illinois Central R. R. Co.* v. *Illinois,* 146 U. S. 387; *Shively* v. *Bowlby,* 152 U. S. 1–57.

The conditions of the St. Lawrence are entirely different from those of the St. Mary's River where all the lands and waters were declared by Congress to be needed to improve the navigation of the St. Mary's River and therefore riparian owners were compelled to submit to the exigencies of commerce, under the grant by the States to Congress of the authority to regulate commerce with foreign nations and among the several States, and with Indian tribes. *United States* v. *Chandler Dunbar W. Power Company,* 229 U. S. 53.

Under no circumstances can it be said that all the waters of the St. Lawrence at any point between Lake Ontario and St. Regis are necessary to improve the navigation of the river, and therefore the Federal government cannot take the lands under any waters not necessary to improve navigation and thereby promote commerce. That is the only ground upon which riparian interests can be taken, and then only by the United States, without making compensation therefor.

In the recent case of the *United State* v. *Cress,* 243 U. S. 316–332, Mr. Justice Pitney said that:

"The states have authority to establish for themselves such rules of property as they may deem expedient with respect to streams of water within their borders both navigable and non-navigable and the ownership of lands forming their beds and banks * * * subject, however, in the case of navigable streams to the paramount authority of Congress to control the navigation, so far as may be necessary for the regulation of commerce among

the states and with foreign nations, * * *. The exercise of this authority being subject, in its turn, to the inhibition of the 5th Amendment against the taking of private property for publice use without just compensation." He cited many authorities in support of the decision of the Supreme Court in that case. There were two actions decided as one to recover damages for the taking of lands and water rights by means of backing water, resulting from the construction and maintenance by the government of certain locks and dams upon the Cumberland and Kentucky rivers in aid of navigation, and judgments for damages in favor of plaintiffs were affirmed.

Subject only to the paramount jurisdiction of the United States under the commerce clause of the Federal Constitution, that being subdivision 3 of section 8 of article I thereof, the jurisdiction of the State extends over the same and the title to all the lands, riparian and water rights in the St. Lawrence River, along the south side of the international boundary, is in the people and in the State of New York. Riparian rights are the property of the owners of the uplands. None of those can be taken away by the United States under the 5th Amendment to the United States Constitution without due process of law, that is, without just compensation.

The jurisdiction of the State of New York over the shores and submerged lands and water rights along the south shore of the St. Lawrence River was upheld in *Matter of Long Sault Development Company,* 212 N. Y. 1, and was recognized in *Long Sault Development Company* v. *Call,* 242 U. S. 272.

All the islands, shore lands, water powers and riparian rights along the St. Lawrence south of the international boundary are vested property rights and have been so since the Revolution. The owners of all these rights cannot be divested of them for public use by the government of the United States under the 5th Amendment to the Constitution without just compensation. *United States* v. *Cress,* 243 U. S. 316; *Martin* v. *Waddell,* 41 U. S. 367; *Yates* v. *Milwaukee,* 77 U. S. 497; *Hardin* v. *Jordan,* 140 U. S. 371; *Dulton* v. *Strong,* 66 U. S. 23; *The Genesee Chief* v. *Fitzhugh,* 53 U. S. 442.

Riparian rights have been recognized as valuable property rights from the time of the Magna Charta. They include the rights of fishing, boating, wharfing, access to navigable waters, and the use of the waters flowing by the lands fronting on a stream, river, lake or the sea. At common law as declared in some States at the time of the Revolution and still in New York, riparian proprietors have all the rights to submerged lands, such as the rights to use the waters for fishing, boating, access out to the navigable waters, including the right to build wharves and the use of the flowing water along their water-fronts, but the bare naked title is assumed to be in the State. These rights, however, are subject to the paramount right of the United States to improve such watercourses for the promotion of commerce and, if need be, to use the submerged lands for that purpose only and the State in its governmental capacity is charged with the trust obligation to preserve the use of such waters in a condition for navigation for the people of the State. The State cannot absolve itself from that trust obligation, nor can it grant it to others. *Town of Brookhaven* v. *Smith,* 188 N. Y. 74. *Matter of Long Sault Development Company,* 212 N. Y. 1. That case was dismissed on appeal to the Supreme Court of the United States but with an opinion 242 U. S. 272.

Originally riparian rights belonged to the lord of the manor and even the king could not interfere with such rights. It was held in *Attorney-General* v. *Parmeter,* 10 Price 378, and affirmed in 10 Price 412, under the title *Parmeter* v. *Gibbs,* that a grant by Charles I of a waterfront along the sea was void because in conflict with prior riparian rights and also as interfering with the public rights of navigation. It was not finally decided in England until 1844 in the case of *Attorney-General* v. *London,* 8 Beaver 279; 18 L. J. Ch. N. S. 314, that the title to the submerged lands under navigable waters was in the Crown. However, a different opinion had quite generally prevailed in this country owing presumably to the influence in judicial circles of "De Jure Maris" of Lord Hale often quoted by the judges, as in Shively v. Bowlby, 152 U. S. 13, where it is said that: "In England, from the time of Lord Hale, it has been treated as

settled that the title in the soil of the sea, or arms of the sea, below highwater mark, is in the King, except as far as an individual or a corporation has acquired rights in it by express grant or by prescription, or usage and this title, *jus privatum,* whether in the King, or in a subject, is held subject to the right, *jus publicum,* of navigation and fishing." *Gun* v. *Free Fishers of Whitsable,* 11 H. L. Cases 192. See *Buccleuch* v. *Metropolitan Board of Works,* L. R. 5 H. L. Cases 418; *Lyon* v. *Fishmongers Co.,* L. R. 1 App. Cases 662; *North Shore R. Co.* v. *Pion,* L. R. 14 App. Cases 612. "The public common of piscary belongs to the people of England and cannot be granted away by the king." *Martin* v. *Waddell,* 41 U. S. 412.

Justice Gray, in *Shively v. Bowlby,* 152 U. S. 15, said: "Upon the American Revolution all the rights of the Crown and of Parliament vested in the several states, subject to the rights surrendered to the national government by the constitution of the United States."

Riparian proprietors of lands bordering upon navigable streams have surrendered nothing to the Federal government other than the right to improve the waters in front of their lands in aid of navigation under the commerce clause of the constitution for "commerce includes navigation" (*Gilman* v. *Philadelphia,* 3 Wallace 713, 724), but such proprietors did not surrender their property rights, which are as sacred as any other property rights (*Bowman* v. *Wathen,* 2 McLean, p. 376), in aid of hydro-electric or other industrial development. Neither has the State of New York surrendered, nor can it surrender, its rights in the submerged lands under the waters of the St. Lawrence River which it holds in trust for all the people of the State. *Matter of Long Sault Development Co.,* 212 N. Y. 1; *Long Sault Development Co.* v. *Call,* 242 U. S. 278–279; *Illinois Central R. R. Co.* v. *Illinois,* 146 U. S. 387.

The United States cannot take any of such submerged lands under the waters of the St. Lawrence which are owned by the State of New York, nor any of the riparian or water rights of the upland proprietors except for the express purpose of improving the navigation of that river without making compensation to the owners thereof.

Who shall estimate the extent of submerged lands and also the extent of the riparian and other rights that may be taken, or injured in the prosecution of the project under consideration for which compensation must be made? Who shall estimate the vast areas of low lying uplands that may be flooded for which compensation must be made as was decided in a somewhat similar case of flooding in *United States* v. *Cress,* 243 U. S. 316?

Will the Canadian government obligate itself to pay one-half of all the damages recoverable for all such losses to property owners on the south of the international boundary?

These appear to be relevant questions and will undoubtedly be given serious consideration by the International Joint Commission. The Congress of the United States will welcome information on these matters.

There is still another grave question that must be answered before Congress can appropriate public funds to carry forward the project and that is this: What authority has Congress under the Constitution of the United States, in time of peace, when its integrity is not menaced, to appropriate moneys from the treasury to construct dams across the St. Lawrence above or below the international boundary and to install the same with hydro-electric equipment for the generation of power, only a small part of which will be available in the United States? What authority is there for such an appropriation either as a national undertaking or jointly or in co-operation with the Dominion of Canada? What function of government will be promoted thereby? Even though it be conceded that the manufacture, supply and sale of power produced by water as a motive force be a public purpose, for which the several States may appropriate moneys (*Mt. Vernon-Woodberry Cotton Duck Co.* v. *Alabama Interstate Power Co.,* 240 U. S. 30), what authority is there for the Federal government to engage in the production and sale of power for industrial purposes? Unless there be some constitutional authority for Congress to act and to maintain eminent domain proceedings, title to the submerged lands in the St. Lawrence River within the boundaries of the State of New York cannot be acquired for such power purposes, because they are included within the State Forest Preserve, and under the Constitution of

the State the lands within the State Forest Preserve cannot be sold, or otherwise alienated, even though the Legislature were disposed to grant the same. Therefore they can only be acquired by condemnation. Section 7 of Article VII of the Constitution of New York. *People* v. *Fisher,* 190 N. Y. 468.

Justice Brewer said in *Monongahela Navigation Company* v. *The United States* (148 U. S. 336) that " the power to regulate commerce is subject to all the limitations imposed by such instrument (Constitution of the United States), and among them is that of the 5th Amendment. Congress has supreme control over the regulation of commerce, but if in the exercise of that supreme control it deems it necessary to take private property, then it must proceed subject to the limitations imposed by the 5th Amendment and take only on payment of just compensation."

Neither the act, regulating the construction of dams across navigable waters, nor the Federal Water Power Law recently enacted, authorizes the United States to take private property for public use without making just compensation therefor. There is no power in Congress to enact any legislation that will deprive the State of New York of the submerged lands and water powers along the St. Lawrence River, or that will deprive the owners of the lands fronting on said waters of their riparian and other property rights without providing for making compensation to the State and to such owners for their properties. Compensation must be made for all such tangible and intangible properties and rights as may be interfered with, impaired or taken in the prosecution of the St. Lawrence River Development project. *Monongahela Navigation Co.* v. *U. S.,* 148 U. S. 335–345; *Richards* v. *Washington Terminal Co.,* 233 U. S. 552; *United States* v. *Cress,* 243 U. S. 316.

The State of New York was the first State in the Union to undertake the construction of a comprehensive system of waterways within its confines. For a century it has investigated, planned, constructed, three times enlarged, reconstructed and operated that system at its own expense, aggregating in the last improvement to date $154,800,000 for construction alone with thirty millions of dollars still to be raised, making a total expenditure, when completed, since 1903, of upwards of $180,000,000.

In addition to that, prior to 1903, it expended upon its canal system seventy-five or more million dollars.

Its canals are of the most approved type and are free of tolls. They are maintained entirely by State taxation.

The State of New York made an exhaustive investigation of the whole subject between the Great Lakes and tidewater before deciding upon the Barge Canal type.

The Roosevelt and other commissions investigated at great length and reported on the kind of canal best adapted for such service. The people of New York showed their confidence in the Barge Canal System in approving at general elections the four canal referendum measures that have been submitted to popular vote. Down to the present time the system has not had a fair trial. The World War and Federal operation have greatly hampered its use and retarded the formation of operating companies. Such companies are now being formed and the outlook is more promising now than at any time since the Barge Canals were completed. The tonnage over the system in 1920 was 1,421,434 tons, a substantial increase over that of 1919.

The people of New York strongly object to being taxed for the construction of a ship canal down the St. Lawrence River. They believe such a canal will be a commercial failure, and will cost millions of dollars, a substantial part of which cost will fall upon the people of that State.

It cannot relieve railroad congestion in the west any more than it can be relieved by the vessels of the Great Lakes, which were not permitted for some time after the World War by the Railroad Administration to carry the grains of the west. All familiar with the conditions know the causes of the congestion. It is not due to the water carriers of the Great Lakes, nor to the inefficiency of the New York canals. If the canal tonnage has not been as large as was expected, it is due to causes outside of New York and beyond its control. Its system can transport more grain and other products than have come, or ever will come from the Great Lakes region for export.

There are many calls for appropriations for the improvement of the rivers and harbors within the confines of the United States that have been approved by the Board of United States Engineers.

Large appropriations are needed for all such improvements. Such appropriations ought not to be postponed in order to provide funds for such a project as the St. Lawrence Ship Canal and power development project.

The State of New York, through its Commission on the St. Lawrence Ship Canal Project, respectfully submits the foregoing points, in addition to matters heretofore submitted to the Honorable International Joint Commission on Boundary Waters, for its consideration in relation to the St. Lawrence Ship Canal and power development.

As stated in the opening paragraph of this report, such report is preliminary only and will be followed later by final report, setting forth in detail the acts and proceedings of the commission and its recommendations. The object and purpose of this preliminary report is that such preliminary report become a Senate document and that sufficient copies thereof be printed so that wide publicity may be given to the specific grounds upon which the commission opposes the so-called St. Lawrence Ship Canal Project.

Dated at Albany, N. Y., January 5th, 1921.

Respectfully submitted,

LEONARD W. H. GIBBS,
Chairman.

EDWARD S. WALSH,
Vice-Chairman.

HENRY W. HILL,
Acting Secretary.

JAMES J. WALKER,

MURRAY HULBERT,

FRANK M. WILLIAMS,

SIMON L. ADLER,

CHARLES D. DONOHUE,
Commissioners.

New York (State) Commission on the St. Lawrence ship canal project
Preliminary report